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WHAT IS CLAIMED IS:

5 1. A superluminal transmission device for measuring the tunneling time of a wavepacket comprising:

a transmission source for generating a wavepacket, the wavepacket comprising a wavefront component;

a signal controller for generating a signal pulse;

a signal receiver for receiving the signal pulse;

10 a selective-transmission device comprising a quantum barrier defining a transmission distance, said selective-transmission device being in signal communication with the transmission source, the signal controller and the receiver such that the wavepacket is transmitted to the barrier and the wavefront component of the wavepacket tunnels through the barrier and across the transmission distance to the receiver causing superluminal group velocities; and

15 a monitor in signal communication with the receiver for determining the tunneling time of the wavepacket.

20 2. A transmitter as described in claim 1, wherein the quantum barrier comprises a pair of transmission barriers positioned parallel to each other and separated by an air gap having a length.

25 3. A transmitter as described in claim 2, wherein the pair of transmission barriers are tanks defining an internal volume capable of holding a liquid.

4. A transmitter as described in claim 3, wherein the liquid is water.

30 5. A transmitter as described in claim 2, wherein the length of the air gap can be adjusted such that the length of the air gap enhances the wavefront component of the wavepacket transmission.

35 6. A transmitter as described in claim 1, wherein the transmitter comprises a pulse transmitter in signal communication with a transmission antenna.

1 7. A transmitter as described in claim 6, wherein the antenna is a five element folded-dipole Yagi antenna.

5 8. A transmitter as described in claim 1, wherein the transmitter further comprises a wavelength selector such that only desired radio wavelengths are transmitted by the transmitter.

10 9. A receiver as described in claim 1, wherein the receiver comprises a radio amplifier in signal communication with a receiver antenna.

15 10. A receiver as described in claim 9, wherein the antenna is a five element folded-dipole Yagi antenna.

20 11. A method for measuring the velocity of a specified frame of reference comprising utilizing a superluminal transmitter as described in claim 1 to measure the tunneling time and comparing said tunneling time verse ^s_λ a standard.

25 12. A method for determining the date and time comprising utilizing a superluminal transmitter as described in claim 1 to measure the tunneling time and comparing said tunneling time verse ^s_λ a standard.